

This document provides pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a **Minor, Municipal** permit. The discharge results from the operation of a 0.75 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS, effective January 6, 2011, and updating permit language as applicable. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260-00 et seq.

1. Facility Name and Mailing Address: Round Hill WWTP
P.O. Box 36
Round Hill, VA 20142
SIC Code: 4952 WWTP

Facility Location: 17749 Lakefield Road
Round Hill, VA 20142
County: Loudoun

Facility Contact Name: Alan Wolverton, Utility Director
Telephone Number: 540-338-4772
2. Permit No.: VA0026212
Expiration Date: 12/18/2011
Other VPDES Permits: VAN010093
Other Permits: PWSID No. 6107650
E2/E3/E4 Status: NA
3. Owner Name: Town of Round Hill
Owner Contact/Title: John Barkley, Town Administrator
Telephone Number: 540-338-7878
4. Application Complete Date: 6/17/2011
Permit Drafted By: Anna Westernik
Date Drafted: 10/3/2011
Draft Permit Reviewed By: Alison Thompson
Date Reviewed: 10/14/2011
WPM Review By: Bryant Thomas
Date Reviewed: 10/24/2011
Public Comment Period : Start Date: 12/22/2011
End Date: 01/20/2012
5. Receiving Waters Information: See **Attachment 1** for the Flow Frequency Determination.
Receiving Stream Name: North Fork Goose Creek
Stream Code: 1aNOG
Drainage Area at Outfall: 11.08 square miles
River Mile: 12.42
Stream Basin: Potomac River
Subbasin: Potomac River
Section: 9
Stream Class: III
Special Standards: None
Waterbody ID: VAN-A06R
7Q10 Low Flow: 0.0 MGD
7Q10 High Flow: 0.6 MGD (Dec – May)
1Q10 Low Flow: 0.0 MGD
1Q10 High Flow: 0.4 MGD (Dec – May)
30Q10 Low Flow: 0.0 MGD
30Q10 High Flow: 1.0 MGD (Dec – May)
Harmonic Mean Flow: 0.88 MGD
30Q5 Flow: 0.2 MGD
303(d) Listed: Yes (Bacteria)
303(d) Listed (Downstream): Yes (Aquatic Life Use, PCBs)
TMDL Approved: Yes (Bacteria)
Date TMDL Approved: 5/1/2003
TMDL Approved (Downstream): Yes (Goose Creek Benthic;
Chesapeake Bay Nutrient
Impairments)
Date TMDL Approved: 4/26/2004
12/29/2010
6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

<div style="margin-bottom: 5px;"><input checked="" type="checkbox"/> State Water Control Law</div> <div style="margin-bottom: 5px;"><input checked="" type="checkbox"/> Clean Water Act</div> <div style="margin-bottom: 5px;"><input checked="" type="checkbox"/> VPDES Permit Regulation</div> <div style="margin-bottom: 5px;"><input checked="" type="checkbox"/> EPA NPDES Regulation</div>	<div style="margin-bottom: 5px;"><input checked="" type="checkbox"/> EPA Guidelines</div> <div style="margin-bottom: 5px;"><input checked="" type="checkbox"/> Water Quality Standards</div> <div style="margin-bottom: 5px;"><input type="checkbox"/> Other: (PES, Occoquan Policy, Dulles)</div>
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7. Licensed Operator Requirements: Class II

8. Reliability Class: Class I

9. Permit Characterization:

<input type="checkbox"/> Private	<input type="checkbox"/> Effluent Limited	<input type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input type="checkbox"/> Toxics Monitoring Program Required	<input type="checkbox"/> Interim Limits in Permit
<input checked="" type="checkbox"/> POTW	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input checked="" type="checkbox"/> TMDL		

10. Wastewater Sources and Treatment Description:

Collection system influent enters the wastewater treatment plant through a gravity line and flows through a Parshall Flume meter to the headworks. Primary treatment is adjacent to Sleeter Lake and consists of an automatic barscreen, a manual backup barscreen, and grit removal. Influent sampling occurs in this area.

Wastewater leaving primary treatment is biologically treated by three sequencing batch reactors (SBRs) that are fitted with surface aeration. Four blowers feed air to the SBR units; use of the spare blower is alternated. Simultaneously, one SBR unit is in the mix phase, one in the react phase, and one in the react/decant phase. Biological treatment of nitrogen and phosphorus occurs in the SBR units. Additionally, DelPac (aluminum chlorohydrate-- $\text{Al}_2\text{ClH}_5\text{O}_5$) is added to each SBR unit within the last ten to twenty minutes of the react phase to assist with further phosphorus removal. An oxidation reduction potential (ORP) meter is used to determine cycle times of the SBR units by controlling the blowers.

Wastewater leaving the SBR units is discharged to an equalization tank before it is pumped to two cloth media tertiary filters. The filters are disk filters with pile cloth and are backwashed approximately every two weeks. They have a seven to nine year lifespan. Filter backwash is recirculated to the head of the plant.

From the filters, the wastewater flows to two ultraviolet disinfection trains. Only one train is used at a time; however, they alternate weekly for cleaning.

Disinfected effluent enters a post aeration tank and is metered through a Parshall Flume just prior to discharge. Samples are collected after the meter, before cascade aeration to the outfall.

The Certificate to Operate (CTO) for plant expansion from a 0.50 MGD wastewater treatment plant to a 0.75 MGD wastewater treatment plant was issued on December 21, 2010.

See **Attachment 2** for a facility schematic/diagram.

TABLE 1 OUTFALL DESCRIPTION				
Number	Discharge Sources	Treatment	Design Flows	Latitude/Longitude
001	Municipal Wastewater	See Item 10 above.	0.75 MGD	39° 07' 14" / 77° 45' 26"
See Attachment 3 for Bluemont Topographic Map (216D).				

11. Sludge Treatment and Disposal Methods:

Sludge is generated in the SBR units and periodically wasted to one of four aerobic digesters. Digested sludge is pumped to the rotary fan press unit where it is conditioned and thickened with polymer and dewatered with a sludge press. Dewatered sludge is conveyed to a truck that is housed in an enclosed area inside the sludge press building and temporarily stored until a full load is accumulated. The sludge is then transported to the Loudoun County Landfill for disposal. Filtrate and uncaptured sludge from the sludge press is drained back to the influent pump station and subsequently, the SBR units.

12. Discharges and Monitoring Stations Within Waterbody VAN-A06R):

TABLE 2 DISCHARGES AND MONITORING STATIONS		
Permit No./Station No.	Facility Name	Receiving Stream
Individual Permits		
VA0022802	Basham Simms WWTF	North Fork Goose Creek, UT
Single Family Homes General Permit		
VAG406146	Climenhaga Richard A Residence	Jack's Run
VAG406175	Zurschmeide Steve Residence	Catoctin Creek, UT
VAG406176	Crouch Bruce Residence	Simpson Creek, UT
Petroleum General Permit		
VAG830395	Round Hill Waterworks	Sleeter Lake
Storm Water Industrial General Permit		
VAR051442	Basham Simms WWTF	North Fork Goose Creek
DEQ Active Monitoring Stations		
1aCRF001.18	Ambient Monitoring Station	Crooked Run
1aNOG005.69	Biological Monitoring Station	North Fork Goose Creek
1aNOG011.60	Ambient Monitoring Station	North Fork Goose Creek

13. Material Storage:

TABLE 3 MATERIAL STORAGE		
Materials Description	Volume Stored	Spill/Storm Water Prevention Measures
Granular Polymer	1 Pallet	Stored Inside Blower Building
Gasoline	300-Gallon AST	Stored Within a Concrete Walled Containment Area
Diesel Fuel	300-Gallon AST	Stored Within Concrete Walled Containment Area
Soda Ash	5 Bags	Stored Inside Blower Building
Motor Oil	Two 55-Gallon Drums	Stored Inside Blower Building
Fertilizer	7 Bags	Stored Inside Blower Building
Liquid Polymer	Two 55-Gallon Drums	Stored Inside Blower Building
DelPac 1525	Two 3,000-Gallon Tanks	Stored in Blower Building Within Polyethylene Tanks Located in a Concrete Secondary Containment
12.5% Sodium Hypochlorite (Used at the WTP Only)	Five 15-Gallon Drums	Stored Inside Blower Building

14. Site Inspection: Performed by Anna Westernik on September 28, 2011 (see Attachment 4).

15. Receiving Stream Water Quality and Water Quality Standards:**a. Ambient Water Quality Data**

The discharge from Outfall 001 flows into the North Fork of Goose Creek. The Department of Environmental Quality (DEQ) has an ambient water quality monitoring station (1aNOG11.60) 0.71 miles downstream from this discharge located at the Route 782 bridge crossing. *E. coli* monitoring at this station finds a bacterial impairment. The 2010 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report (IR) lists North Fork Goose Creek as an impaired water for bacteria. The impairment is nested within the downstream completed bacteria Total Maximum Daily Load (TMDL) for the North Fork of Goose Creek.

A biological monitoring event in 2008 at DEQ Monitoring Station 1aNOG005.69, located 2.8 rivermiles downstream from Outfall 001, resulted in a Virginia Stream Condition Index (VSCI) score indicating an impaired macroinvertebrate community. Additionally, biological monitoring events in 2008 at DEQ Monitoring Station 1aGOO002.38 at Route 7, located approximately 23.1 miles downstream from Outfall 001, resulted in a VSCI score that indicates an impaired macroinvertebrate community.

The fish consumption use is categorized as impaired due to a Virginia Department of Health PCB fish consumption advisory. Additionally, there were exceedances of the water quality criterion based tissue screening value of 20 ppb for PCBs in American eel and smallmouth bass. This impairment is located approximately 21.8 rivermiles downstream from Outfall 001.

The full planning statement is found in **Attachment 5**.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal and the 2010 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based in part on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the bay states and their major tributary basins, as well as by major source categories (i.e. wastewater, urban storm water, onsite/septic agriculture, air deposition). Section 17.e of this fact sheet provides additional information on specific nutrient limitations for this facility to implement the provisions of the Chesapeake Bay TMDL.

b. Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, North Fork Goose Creek, is located within Section 9 of the Potomac River Basin and designated as Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32° C, and maintain a pH of 6.0-9.0 standard units (S.U.).

Attachment 6 details other water quality criteria applicable to the receiving stream.

Ammonia:

The CTO for plant expansion from a 0.50 MGD wastewater treatment plant to a 0.75 MGD wastewater treatment plant and installation of Enhanced Nutrient Removal (ENR) was issued on December 21, 2010. Staff has re-evaluated the effluent data for pH and temperature for the time period of January 1, 2011 through August 31, 2011 and has found the 90th percentile pH and temperature to be 8.2 S.U. and 24°C, respectively (see **Attachment 7**). Since the 30Q10 and 1Q10 of the receiving stream are 0.0 MGD, effluent pH and temperature data may be used to establish the ammonia water quality criteria. Receiving stream pH and temperature data were not used to determine yearly ammonia criteria since the critical stream flows are 0.0 MGD and the ammonia limit is not being seasonally tiered.

For reference purposes only, 90th percentile pH and temperature values of 7.9 S.U. and 26°C were derived from DEQ Monitoring Station 1aNOG011.60 located on the North Fork of Goose Creek approximately 0.71 miles downstream of Round Hill WWTP Outfall 001 to determine the high flow ammonia criteria (see **Attachment 8**). Since sufficient high flow data is not available for the effluent or receiving stream, a winter default value of 15°C was used to calculate the ammonia

criteria during the high flow months. The receiving stream 90th percentile pH and temperature values are shown in **Attachment 6**.

Metals Criteria:

Metals criteria were determined using an effluent hardness value of 200 mg/L derived from a September 9, 2011 sampling event.

Bacteria Criteria:

The Virginia Water Quality Standards 9VAC25-260-170.A state that the following criteria shall apply to protect primary recreational uses in surface waters:

E. coli bacteria per 100 mL of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean ¹
Freshwater <i>E. coli</i> (N/100 mL)	126

¹For a minimum of four weekly samples taken during any calendar month

c Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, North Fork Goose Creek, is located within Section 9 of the Potomac River Basin. This section has not been designated with a special standard.

d Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on September 12, 2011 for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened or endangered species were identified within a 2 mile radius of the discharge: the Wood Turtle, the Upland Sandpiper, the Shrike Loggerhead, Henslow's Sparrow, the Bald Eagle, the Green Floater, and the Migrant Loggerhead Shrike. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and protect the threatened and endangered species found near the discharge.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The critical flows for the stream are zero and at times the stream flow is comprised of only effluent. Additionally, a downstream benthic impairment is present in North Fork Goose Creek and the Goose Creek Watershed (see Section 26 of this fact sheet). It is staff's best professional judgment that this receiving stream be classified as Tier 1. Permit limits proposed have been established by determining wasteload allocations that will result in attaining and/or maintaining all water quality criteria applicable to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses and maintain the downstream sediment TMDL.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLAs are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. In the case of ammonia evaluations, limits are needed if the 97th percentile of the thirty-day average effluent concentration values is greater than the chronic WLA. Effluent limitations are based on the most limiting WLA, the

required sampling frequency and statistical characteristics of the effluent data.

a. Effluent Screening

Effluent data obtained from the discharge monitoring reports (DMRs) have been reviewed and determined to be suitable for evaluation. A wasteload allocation analysis was conducted for ammonia.

b. Mixing Zones and Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where: WLA = Wasteload allocation
 C_o = In-stream water quality criteria
 Q_e = Design flow
 Q_s = Critical receiving stream flow
 (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; 30Q10 for ammonia criteria; and 30Q5 for non-carcinogen human health criteria)
 f = Decimal fraction of critical flow
 C_s = Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 30Q10, 7Q10, and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C_o .

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as N is likely present since the discharge is from a wastewater treatment plant. As such, **Attachment 6** details the WLA derivations for ammonia.

c. Effluent Limitations, Outfall 001 – Toxic Pollutants

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

Ammonia as N/ Total Kjeldahl Nitrogen (TKN):

In the last permit reissuance, DEQ used a monthly average TKN limitation of 3.0 mg/L to control both ammonia and DO levels. It is generally accepted that TKN consists of approximately 60% ammonia in raw wastewater. As the waste stream is treated, the ammonia component of TKN is converted to Nitrate (NO_3) and Nitrite (NO_2). It is estimated that a facility achieving a TKN limit of 3.0 mg/L essentially removes ammonia from the waste stream, resulting in a 'self-sustaining' quality effluent that protects against ammonia toxicity.

The toxicity of ammonia is dependent on the pH of the effluent and/or receiving stream. Ammonia can exist as both "ionized ammonia" (NH_4) and "un-ionized ammonia" (NH_3) forms. Research has shown that the un-ionized ammonia is the fraction that is toxic to aquatic life, while the ionized ammonia has been found to have little or no toxic effect. Furthermore, it has been demonstrated that the un-ionized fraction increases correspondingly with rising pH values; thus, increasing potential toxicity.

Staff has recalculated WLAs for ammonia using newly-calculated criteria and the current critical flows (see Section 15.b of this fact sheet). In accordance with current DEQ guidance, staff used a default data point of 9.0 mg/L and the calculated WLAs to derive limits. An ammonia monthly average of 1.1 mg/L and a weekly average limit of 1.4 mg/L were derived for this discharge (see **Attachment 9**). Since it is estimated that a TKN limit of 3.0 mg/L will effectively remove ammonia concentration of less than 1.0 mg/L, the current TKN limit of 3.0 mg/L is deemed to be protective of the receiving stream and shall remain in this permit. As in the previous reissuance, the weekly average limit will be 4.5 mg/L based on a multiplier of 1.5 times the monthly average.

d. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to Dissolved Oxygen (D.O.), Carbonaceous Biochemical Oxygen Demand-5 day (cBOD₅), Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN), and pH limitations are proposed.

Dissolved Oxygen, BOD₅ and TKN limitations are based on the stream modeling conducted in December 2005 (**Attachment 10**) and are set to meet the water quality criteria for D.O. in the receiving stream.

The regional model was run encompassing two segments (a segment of the North Fork of Goose Creek and a segment of an unnamed tributary of the North Fork of Goose Creek): the point of discharge from the Round Hill WWTP to the confluence with the unnamed tributary where the Basham Simms WQMF discharges and the point of discharge from the Basham Simms WQMF to the end of the unnamed tributary. The model runs used flows of 0.75 MGD for the Round Hill WWTP and 1.5 MGD for the Basham Simms WQMF. The segment 1 end values were used as input values for segment 2. It was determined that the following concentration limitations were necessary at the Basham Simms WWTP 1.5 MGD flow tier to protect water quality criteria for D.O.: D.O. (6.5 mg/L), CBOD₅ (10 mg/L), and TKN (5.0 mg/L). The model already captures the change in elevation that affects the reaeration rate. At a 0.75 MGD design flow tier, the following Round Hill WWTP concentration limitations of D.O. (7.0 mg/L), CBOD₅ and TSS (10 mg/L), and TKN (3.0 mg/L), will protect the dissolved oxygen in the receiving stream. This is a conservative approach since this version does not assume 100% saturation resulting from a waterfall present in the modeled segments. A steady state stream D.O. model was used based on the belief that the discharges are continuous in nature.

The model run demonstrated that the minimum water quality criterion for D.O. is met with a 0.75 MGD discharge from the Round Hill WWTP with the following limits: a cBOD and TSS of 10 mg/L monthly average and 15 mg/L weekly average to protect the dissolved oxygen in the receiving stream, a TKN monthly average limit of 3.0 mg/L, and a D.O. minimum of 7.0 mg/L.

It is staff's practice to equate the TSS limits with cBOD₅ limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170.

e. Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries.

Only concentration limits are now included in the individual VPDES permit when the facility installs nutrient removal technology. The basis for the limitations is 9VAC25-40 – *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed*, which requires new or expanding discharges with design flows of ≥ 0.04 MGD to treat for TN and TP to either BNR levels (TN = 8 mg/L; TP = 1.0 mg/L) or SOA levels (TN = 3.0 mg/L and TP = 0.3 mg/L).

This facility has also obtained coverage under 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements shall be authorized, monitored, limited and otherwise regulated under the general permit and not this individual permit. This facility has coverage under this General Permit; the permit number is VAN010093. Total Nitrogen and Total Phosphorus Annual Loads from this facility are found in 9VAC25-720 – *Water Quality Management Plan Regulation*, which sets forth TN and TP maximum wasteload allocations for facilities designated as significant discharges (i.e., those with design flows of ≥ 0.5 MGD above the fall line and ≥ 0.1 MGD below the fall line).

Monitoring for Nitrates + Nitrites, Total Kjeldahl Nitrogen, Total Nitrogen and Total Phosphorus are included in this permit. The monitoring is needed to protect the Water Quality Standards of the Chesapeake Bay. Monitoring frequencies reflect

those as set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date calculations for Total Nitrogen and Total Phosphorus are included in this individual permit.

The annual averages are based on 9VAC25-40 and GM07-2008.

f. Effluent Limitations and Monitoring Summary

The effluent limitations are presented in the following table. Limits were established for cBOD₅, TSS, pH, D.O., TKN, Total Nitrogen Annual Average, Total Phosphorus Annual Average and *E. coli*.

The limit for TSS is based on Best Professional Judgment.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for BOD/cBOD and TSS (or 65% for equivalent to secondary). The limits in this permit are water-quality-based effluent limits and result in greater than 85% removal.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19. Effluent Limitations/Monitoring Requirements:

Design flow is 0.75 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	1	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
cBOD ₅	1,2	10 mg/L 28 kg/day	15 mg/L 42 kg/day	NA	NA	3D/W	8H-C
Total Suspended Solids (TSS)	3	10 mg/L 28 kg/day	15 mg/L 42 kg/day	NA	NA	3D/W	8H-C
Dissolved Oxygen (D.O.)	1,2	NA	NA	7.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	1,2	3.0 mg/L 9.0 kg/day	4.5 mg/L 13 kg/day	NA	NA	3D/W	8H-C
<i>E. coli</i> (Geometric Mean) ^(a)	1	126 n/100mls	NA	NA	NA	3D/W	Grab
Nitrate+Nitrite, as N	1,4	NL mg/L	NA	NA	NA	1/2W	8H-C
Total Nitrogen ^(b)	1,4	NL mg/L	NA	NA	NA	1/2W	Calculated
Total Nitrogen – Year to Date ^(c)	1,4	NL mg/L	NA	NA	NA	1/M	Calculated
Total Nitrogen – Calendar Year ^(c)	1,4	4.0 mg/L	NA	NA	NA	1/Y	Calculated
Total Phosphorus	1,4	NL mg/L	NA	NA	NA	1/2W	8H-C
Total Phosphorus – Year to Date ^(c)	1,4	NL mg/L	NA	NA	NA	1/M	Calculated
Total Phosphorus – Calendar Year ^(c)	1,4	0.30 mg/L	NA	NA	NA	1/Y	Calculated

The basis for the limitations codes are:

1. Water Quality Standards
2. Stream Model (**Attachment 10**)
3. Best Professional Judgment
4. 9VAC25-40 (Nutrient Regulation)

MGD = Million gallons per day.

NL = No limit; monitor and report

NA = Not applicable.

TIRE = Totalizing, indicating and recording equipment.

S.U. = Standard units.

1/D = Once every day.

3D/W = Three days a week.

1/2W = Once every 2 weeks, > 7 days apart.

1/M = Once every month.

1/Y = Once every calendar year.

8H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of eight (8) grab samples obtained at hourly or smaller intervals may be collected. Where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

^(a) Samples shall be collected between the hours of 10 A.M. and 4 P.M.

^(b) Total Nitrogen = Sum of TKN plus Nitrate+Nitrite

^(c) See Section 20.a. for details regarding the nutrient calculations.

20. Other Permit Requirements:

- a. Permit Section Part I.B. contains quantification levels and compliance reporting instructions. 9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the Nitrogen and Phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. §62.1-44.19:13 of the Code of Virginia define how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs since the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

- b. Permit Section Part I.C. details the requirements of a Pretreatment Program. The Round Hill WWTP is a POTW with a current design capacity of 0.75 MGD. Since this facility discharges greater than 40,000 gpd, pretreatment program conditions requiring a survey of industrial users in accordance with DEQ guidance are included in Part I.C of the VPDES permit to determine if a pretreatment program may be needed.

21. Other Special Conditions:

- a. 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.
- b. Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200 B.1. and B.2. for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.
- c. O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. On or before April 23, 2012, the permittee shall submit for approval an Operations and Maintenance (O&M) Manual or a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- d. CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.
- e. Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200.C., and Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class II operator.
- f. Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet reliability Class I.

- g. Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.
 - h. Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2., and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.
 - i. E3/E4. 9VAC25-40-70.B. authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.
 - j. Nutrient Reopener. 9VAC25-40-70.A. authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390.A. authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.
 - k. TMDL Reopener. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL that may be developed and approved for the receiving stream.
22. Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.
23. **Changes to the Permit from the Previously Issued Permit:**
- a. Special Conditions:
 - 1) The Water Quality Criteria Reopener, the Nutrient Enriched Waters Reopener, and the Nutrient Reporting Calculations, Special Conditions have been removed.
 - 2) The Nutrient Reopener and TMDL Special Conditions have been added.
 - b. Monitoring and Effluent Limitations:
 - 1) Monitoring for orthophosphate has been removed.
 - 2) Monitoring for nutrient loading has been removed.
 - c. Other:
 - 1) The flow frequencies at the discharge point were updated using 2006 flow values at Gauging Station #01638480 on Catoctin Creek.
 - 2) The quantification limits for TKN, nitrate/nitrite, phosphorus, and *E. Coli* have been removed from Part I. B of the permit.
 - 3) Part II of the permit has been updated to include VELAP language.

24. **Variances/Alternate Limits or Conditions:** None

25. **Public Notice Information:**

First Public Notice Date: 12/21/2011

Second Public Notice Date: 12/28/2011

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193; Telephone No. (703) 583-3837; anna.westernik@deq.virginia.gov. See **Attachment 11** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action and may request a public hearing during the comment period. Comments shall include the name, address and telephone number of the writer and of all persons represented by the commenter/requester and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state

1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):

A Bacteria TMDL was approved by EPA on May 1, 2003 for Goose Creek. This TMDL was modified on October 30, 2006. The 2006 modification occurred because three point sources requested expanded flows in their VPDES Permits: the Basham Simms WQMF (VA0022802), the Round Hill WWTP (VA0026212), and the Middleburg WWTP (VA0024775). The wasteload allocations for these three facilities were adjusted and the modeling included a five-fold margin for potential growth. The increased load from these point sources did not cause increases in the overall watershed bacteria concentrations since the concentrations are storm water driven.

The TMDL modification established a wasteload allocation (WLA) for the Round Hill WWTP in terms of both fecal coliform bacteria ($2.07E+12$ cfu/year) and *E. coli* bacteria ($1.31E+12$ cfu/year). The permit limit associated with the TMDL is the limit of 126 n/cmL for *E. coli*. The facility has been in compliance with the *E. coli* limit in the current permit. It is staff's best professional judgment that the *E. coli* limit will allow the Round Hill WWTP to achieve compliance with the WLA in the Bacteria TMDL.

The Goose Creek Benthic TMDL was approved by EPA on April 26, 2004. This TMDL gave the Round Hill WWTP a sediment WLA of 7.6 tons/year based upon the permitted designed flow of 0.5 MGD and the permitted TSS concentration of 10 mg/L. The new sediment WLA for the Round Hill WWTP is 11.4 tons/years based upon the permitted design flow of 0.75 MGD and the permitted TSS concentration of 10 mg/L. It is staff's best professional judgment that the TSS limit is protective of the Water Quality Standards and the approved TMDL for the Goose Creek Watershed. The facility is currently in compliance with the TSS limitations and hence, the Benthic TMDL.

The North Fork Goose Creek Aquatic Life Use Impairment TMDL is due in 2022 and the Goose Creek Fish Tissue Impairment TMDL is due in 2018.

See **Attachment 5** – Planning Statement.

27. Additional Comments:

Previous Board Action(s):	None
Staff Comments:	None
Public Comment:	No comments were received during the public notice.
EPA Checklist:	The checklist can be found in Attachment 12 .

Attachments

Attachment 1	Flow Frequency Determination
Attachment 2	Facility Schematic/Diagram
Attachment 3	Bluemont Topographic Map (216D)
Attachment 4	Site Inspection
Attachment 5	Planning Statement
Attachment 6	Water Quality Criteria/Wasteload Allocation Derivation
Attachment 7	90 th Percentile pH and Temperature Derivation for Effluent
Attachment 8	90 th Percentile pH and Temperature Derivation for the North Fork Goose Creek
Attachment 9	Ammonia as N Limitations Derivation
Attachment 10	Stream Model
Attachment 11	Public Notice
Attachment 12	EPA Checklist

Flow Frequencies at Outfall 001 of the Round Hill WWTP (VA0026212)

Updated September 13, 2011 Using 2006 Flow Values

Catoctin Creek near Taylorstown (#01638480)					
	cfs	MGD		cfs	MGD
30Q10 High Flow	12	7.8	30Q10 Low Flow	1.5	1.0
7Q10 High Flow	7	4.5	7Q10 Low Flow	0.63	0.4
1Q10 High Flow	4.9	3.2	1Q10 Low Flow	0.52	0.3
30Q5	2.8	1.8	Harmonic Mean	11	7.1
North Fork Goose Creek at Discharge Point (Outfall 001)					
30Q10 High Flow (MGD)		1.0	30Q10 Low Flow (MGD)		0.12
7Q10 High Flow (MGD)		0.6	7Q10 Low Flow (MGD)		0.05
1Q10 High Flow (MGD)		0.4	1Q10 Low Flow (MGD)		0.04
30Q5 (MGD)		0.2	Harmonic Mean (MGD)		0.88

The Flow Value in MGD is calculated as such: $\text{cfs} \times 0.6463 = \text{MGD}$

Flow frequencies were calculated through drainage area comparisons using data collected at Gauging Station period of 1971 to 2003.

The values at the discharge point were calculated using drainage area proportions and do not address any withdrawals, discharges, or springs lying between the gage and the discharge point.

The following formula was used to determine the flow at the discharge point:

$$\left(\frac{\text{Drainage Area at Discharge Point}}{\text{Drainage Area at Gauging Station}} \right) \times \text{Gauging Station Flow Value}$$

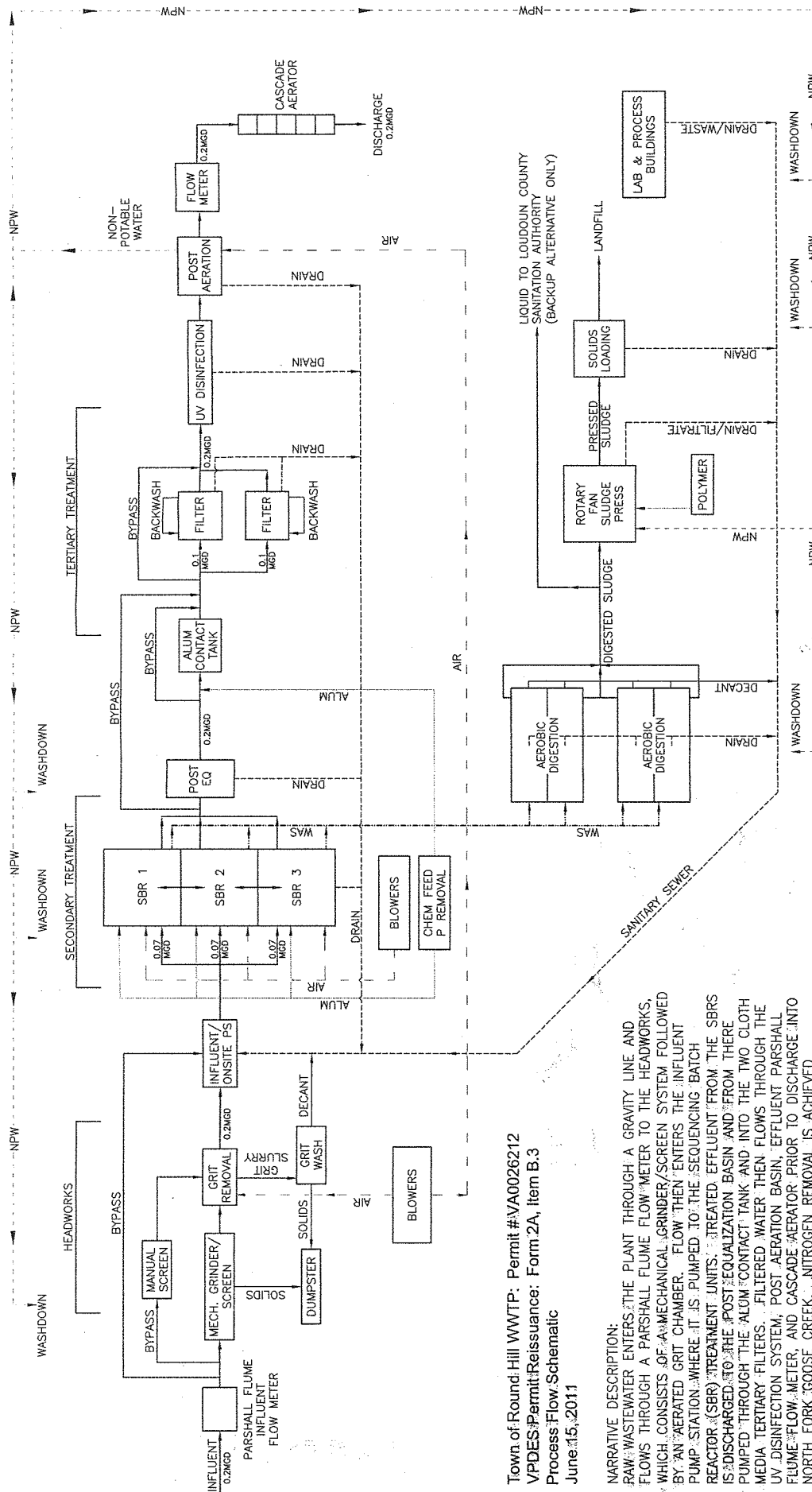
89.6 sq. mi. = DA at Gauging Station

11.08 sq. mi. = DA at Outfall 001

Although the critical lows flows are slightly greater than zero, a 1Q10, 7Q10, and 30Q10 or 0.0 MGD will be assumed due to the discharge of Outfall 001 in an area below Sleeter Lake that has been shown to have no flow during drought periods.

High flow months are Dec-May

Updated by Anna Westernik

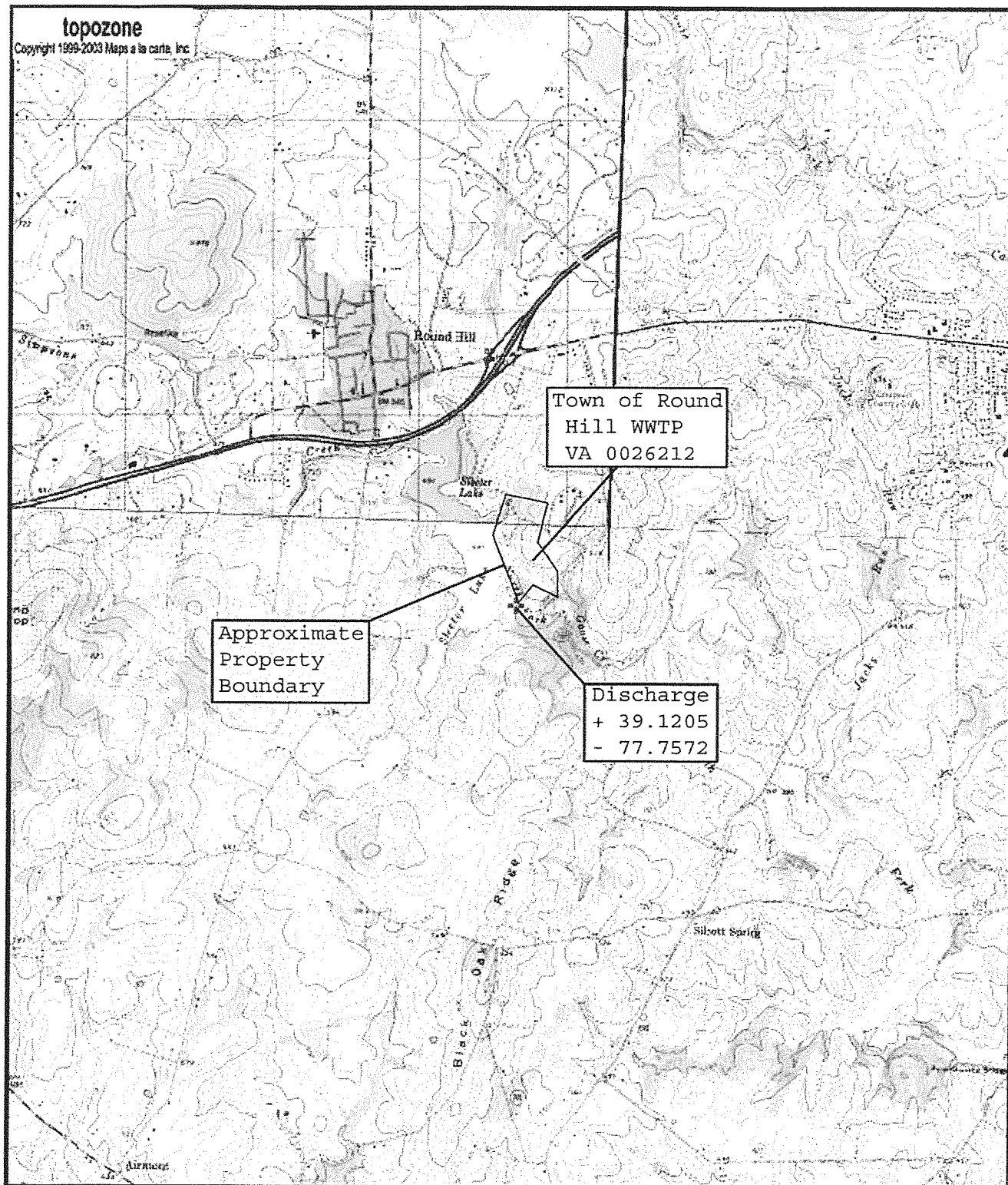


Town of Round Hill WWTP: Permit #VA00026212
 VPDES Permit Reissuance: Form 2A, Item B.3
 Process Flow Schematic
 June 15, 2011

NARRATIVE DESCRIPTION:
 RAW WASTEWATER ENTERS THE PLANT THROUGH A GRAVITY LINE AND FLOWS THROUGH A PARSHALL FLOW METER TO THE HEADWORKS, WHICH CONSISTS OF A MECHANICAL GRINDER/SCREEN SYSTEM FOLLOWED BY AN AERATED GRIT CHAMBER. FLOW THEN ENTERS THE INFLUENT PUMP STATION WHERE IT IS PUMPED TO THE SEQUENCING BATCH REACTOR (SBR) TREATMENT UNITS. TREATED EFFLUENT FROM THE SBRs IS DISCHARGED TO THE POST-EQUALIZATION BASIN AND FROM THERE IS PUMPED THROUGH THE ALUM CONTACT TANK AND INTO THE TWO CLOTH MEDIA TERTIARY FILTERS. FILTERED WATER THEN FLOWS THROUGH THE UV DISINFECTION SYSTEM. POST AERATION BASIN EFFLUENT PARSHALL FLOW METER, AND CASCADE AERATOR PRIOR TO DISCHARGE INTO NORTH FORK GOOSE CREEK. NITROGEN REMOVAL IS ACHIEVED BIOLOGICALLY IN THE SBR UNITS. BIOLOGICAL PHOSPHORUS REMOVAL ALSO OCCURS IN THE SBRs, AND IS ENHANCED THROUGH CHEMICAL FEED EITHER INTO THE SBR UNITS AND/OR AHEAD OF THE ALUM CONTACT TANK.

Peed & Bortz, L.L.C.

CIVIL & ENVIRONMENTAL ENGINEERS



0 0.6 1.2 1.8 2.4 3 km
0 0.4 0.8 1.2 1.6 2 mi

Map center is 39.1205°N, 77.7572°W (WGS84/NAD83)
Bluemont quadrangle
Projection is UTM Zone 18 NAD83 Datum

M*
M=-10.393
G=-1.741



MEMORANDUM

Northern Regional Office

TO: Round Hill WWTP Reissuance File VA0026212

FROM: Anna Westernik, Water Permit Writer

DATE: October 3, 2011

SUBJECT: September 28, 2011 Site Inspection for the 2011 VPDES Permit Reissuance

As part of the VPDES permit reissuance process for the permit expiring December 18, 2011, a site inspection of the Round Hill WWTP was made on September 28, 2011. Persons present during the inspection were myself and Alan Wolverton and Marty Feltner from the Round Hill WWTP.

In December 2010, this facility was issued a certificate to operate that expanded the design flow of the treatment plant from 0.5 MGD to 0.75 MGD. This 0.75 MGD facility provides wastewater treatment for the Town of Round Hill and subdivisions surrounding the Town of Round Hill. The treatment plant is located east of Round Hill on Lakefield Drive off State Route 7.

Collection system influent enters the wastewater treatment plant through a gravity line and flows through a Parshall Flume meter to the headworks. Primary treatment is adjacent to Sleeter Lake and consists of an automatic barscreen, a manual backup barscreen, and grit removal. Influent sampling occurs in this area.

Wastewater leaving primary treatment is biologically treated by three sequencing batch reactors (SBRs) that are fitted with surface aeration. Four blowers feed air to the SBR units; use of the spare blower is alternated. Simultaneously, one SBR unit is in the mix phase, one in the react phase, and one in the react/decant phase. Biological treatment of nitrogen and phosphorus occurs in the SBR units. Additionally, DelPac (aluminum chlorohydrate-- $\text{Al}_2\text{ClH}_5\text{O}_5$) is added to each SBR unit within the last ten to twenty minutes of the react phase to assist with further phosphorus removal. An oxidation reduction potential (ORP) meter is used to determine cycle times of the SBR units by controlling the blowers.

Wastewater leaving the SBR units is discharged to an equalization tank before it is pumped to two cloth media tertiary filters. The filters are disk filters with pile cloth and are backwashed approximately every two weeks. They have a seven to nine year lifespan. Filter backwash is recirculated to the head of the plant.

From the filters, the wastewater flows to two ultraviolet disinfection trains. Only one train is used at a time; however, they alternate weekly for cleaning.

Disinfected effluent enters a post aeration tank and is metered through a Parshall Flume just prior to discharge. Samples are collected after the meter, before cascade aeration to the outfall.

The waste activated sludge is pumped to one of the four aerobic digesters. Polymer can be added to aid settling. Three blowers feed diffused air to the digesters; only one is run at a time. When the digester tanks are decanted, the liquid is sent to the head of the plant. Digested sludge is sent to the Town of Leesburg Landfill for disposal.

Chemicals are stored in the maintenance building that houses the blowers and outside the maintenance building there are two aboveground storage tanks (ASTs) containing gasoline and diesel fuel. A concrete wall is present around the ASTs. The chemical storage room in the maintenance building has drains going to the headworks. It is recommended that all liquid chemicals within the building be stored in dual containment or the floor drains be plugged.

The effluent discharges into the North Fork Goose Creek just below the Sleeter Lake dam. The stream channel is fast flowing with many riffles and has a rocky bottom; it is approximately twenty feet wide at the discharge location. The elevation quickly changes just downstream of the discharge location due to the presence of a waterfall. There was some algae present on the cascade aerator on this date. The stream was clear and aquatic life was present.

Two storm water grates present on the treatment plant grounds discharge to a pipe that empties into the North Fork Goose Creek downstream of Outfall 001.

To: Anna Westernik
From: Katie Conaway
Date: Revised, October 26, 2011
Subject: Planning Statement for the Town of Round Hill WWTP
Permit Number: VA0026212

Discharge Type: Municipal, Minor
Discharge Flow: 0.75 MGD (Outfall 001)
Receiving Stream: North Fork Goose Creek
Latitude / Longitude: 39.1205 / -77.7572
Streamcode: 1aNOG
Waterbody: VAN-A06R
Water Quality Standards: Class III, Section 9.
Rivermile: 12.42

1. Is there monitoring data for the receiving stream?

Yes.

- If yes, please attach latest summary.

The discharge from VA0026212 flows into North Fork Goose Creek. The nearest downstream monitoring station on North Fork Goose Creek is Station 1aNOG011.60, located at the Route 782 bridge crossing, approximately 0.82 rivermiles downstream from the Outfall of VA0026212. The following is a monitoring summary for Station 1aNOG011.60, as taken from the 2010 Integrated Assessment:

Class III, Section 9.

DEQ ambient watershed monitoring station 1aNOG011.60, at Route 782. Citizen monitoring station 1aNOG-7-LWC.

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. This impairment is nested within the downstream completed bacteria TMDL for North Fork Goose Creek. The data collected by the citizen monitoring group indicate that a water quality issue may exist for the aquatic life use; however, the methodology and/or data quality has not been approved for such a determination. Citizen monitoring finds a medium probability of adverse conditions for biota, noted by an observed effect for the aquatic life use, which, otherwise, is considered fully supporting. The wildlife use is considered fully supporting. The fish consumption use was not assessed.

- If no, where is the nearest downstream monitoring station.

N/A

2. Is the receiving stream on the current 303(d) list?

Yes.

- If yes, what is the impairment?

Recreational Use Impairment: Sufficient excursions from the maximum *E. coli* bacteria criterion (2 of 6 samples - 33.3%) were recorded at DEQ's ambient water quality monitoring station (1aNOG011.60) at the Route 782 crossing to assess this stream segment as not supporting the recreation use goal for the 2010 water quality assessment.

- Has the TMDL been prepared?

Yes. EPA Approved the TMDL on 05/01/2003. TMDL was modified on 10/30/2006.

- If yes, what is the WLA for the discharge?

The TMDL modification established a WLA for this facility in terms of both fecal coliform bacteria and *E. coli* bacteria:

Fecal Coliform WLA: 2.07E+12 cfu/year

***E. Coli* WLA: 1.31E+12 cfu/year**

- If no, what is the schedule for the TMDL?

N/A

3. If the answer to (2) above is no, is there a downstream 303(d) listed impairment?

In addition to the above listed impairment, there are several downstream impairments that should be noted.

- If yes, what is the impairment?

North Fork Goose Creek – Aquatic Life Use Impairment: One biological monitoring event in 2008 at station 1aNOG005.69 (Route 722) resulted in a VSCI score which indicates an impaired macroinvertebrate community. This impairment is located approximately 2.8 rivermiles downstream from Outfall 001.

Goose Creek Fish Tissue Impairment: The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 12/13/04, limits American eel consumption to no more than two meals per month. The affected area includes the following tributaries between the Virginia/Maryland state line near the Route 340 bridge (Loudoun County) to the I-395 bridge in Arlington County (above the Woodrow Wilson Bridge): Goose Creek up to the Dulles Greenway Road Bridge, Broad Run up to the Route 625 bridge, Difficult Run up to the Route 7 bridge, and Pimmit Run up to the Route 309 bridge. Additionally, there were exceedances of the water quality criterion based tissue screening value (TV) of 20 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in American eel (2004, 2004) and smallmouth bass (2004). This impairment is located approximately 21.8 rivermiles downstream from Outfall 001.

Goose Creek Aquatic Life Use Impairment: One of 2 biological monitoring events in 2008 at station 1aGOO002.38 (Route 7) resulted in a VSCI score which indicates an impaired macroinvertebrate community, as does the mean score of these two sampling events. This impairment is located approximately 23.1 rivermiles downstream from Outfall 001.

- Has a TMDL been prepared?

North Fork Goose Creek Benthic Impairment – No.

Goose Creek Fish Tissue Impairment (PCBs) – No.

Goose Creek Aquatic Life Use Impairment – Yes. TMDL Approved 4/26/2004.

- Will the TMDL include the receiving stream?

North Fork Goose Creek Benthic Impairment – TMDL will not specifically include the segment of North Fork Goose Creek that receives the discharge from Round Hill WWTP. However, the TMDL will consider all upstream point source discharges.

Goose Creek TMDLs will not/did not specifically include the receiving steam. However, the TMDL will/did include all upstream relevant point source discharges.

- Is there a WLA for the discharge?

The Goose Creek Benthic TMDL determined that the key pollutant affecting the benthic biological community was sediment. The TMDL gave VA0026212 a WLA of 7.6 tons per year. This WLA was determined using the maximum permitted design flow at the time of TMDL development (.5MGD) and the permitted TSS concentration (10 mg/L). The 2006 version of the permit included an expansion to .75 MGD. Thus, the new WLA should be **11.4 tons/year** (based on a maximum permitted design flow of 0.75 MGD and a TSS limit of 10 mg/L). The TMDL specifically included an allocation for the future growth and expansion of point sources. This growth is more than enough to cover this expansion.

- What is the schedule for the TMDL?

North Fork Goose Creek Aquatic Life Use Impairment: Due 2022

Goose Creek Fish Tissue Impairment: Due 2018

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

- A. There is a completed downstream TMDL for the nutrient impairments for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.
- B. Goose Creek is listed with a PCB impairment (TMDL Due Date: 2018). Although TMDL Guidance Memo No. 09-2001 recommends that minor municipal VPDES facilities collect 1 wet sample and 1 dry PCB sample during the permit cycle using EPA Method 1668B, the request for PCB monitoring may be waived if it can be reasonably assumed that the facility does not contribute PCBs (for example, if the facility was built after 1976, when PCB production was banned by the federal government in this year, or if the facility can certify that PCBs were never present on the site). The Assessment/Planning staff does not believe that this facility

should be required to perform PCB monitoring due to the fact that it serves a small residential community with few possible sources that could contribute PCBs.

C. Drainage Area: 11.08 mi²

5. Fact Sheet Requirements – Please provide information on other VPDES permits or VADEQ monitoring stations located within a 2 mile radius of the facility. In addition, please provide information on any drinking water intakes located within a 5 mile radius of the facility.

There are no VPDES permits within a 2 mile radius of this facility. There is one DEQ monitoring station within a 2 mile radius of this facility: Station 1aNOG011.60, located on North Fork Goose Creek at the Route 782 bridge crossing. There are no drinking water intakes within a 5 mile radius of this facility.

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Round Hill WWTP
Receiving Stream: North Fork Goose Creek

Permit No.: VA0026212

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information			Stream Flows			Mixing Information			Effluent Information		
Mean Hardness (as CaCO ₃) =	mg/L		1Q10 (Annual) =	0 MGD		Annual - 1Q10 Mix =	100 %		Mean Hardness (as CaCO ₃) =	200 mg/L	
90% Temperature (Annual) =	26 deg C		7Q10 (Annual) =	0 MGD		- 7Q10 Mix =	100 %		90% Temp (Annual) =	24 deg C	
90% Temperature (Wet season) =	15 deg C		30Q10 (Annual) =	0 MGD		- 30Q10 Mix =	100 %		90% Temp (Wet season) =	15 deg C	
90% Maximum pH =	7.9 SU		1Q10 (Wet season) =	0.4 MGD		Wet Season - 1Q10 Mix =	100 %		90% Maximum pH =	8.2 SU	
10% Maximum pH =	7.6 SU		30Q10 (Wet season) =	1 MGD		- 30Q10 Mix =	100 %		10% Maximum pH =	6.6 SU	
Tier Designation (1 or 2) =	1		30Q5 =	0.2 MGD					Discharge Flow =	0.75 MGD	
Public Water Supply (PWS) Y/N? =	n		Harmonic Mean =	0.88 MGD							
Trout Present Y/N? =	n										
Early Life Stages Present Y/N? =	y										

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)
Acenaphthene	0	--	--	na	9.9E+02	--	--	na	1.3E+03	--	--	--	--	--	--	na
Acrolein	0	--	--	na	9.3E+00	--	--	na	1.2E+01	--	--	--	--	--	--	na
Acrylonitrile ^c	0	--	--	na	2.5E+00	--	--	na	5.4E+00	--	--	--	--	--	--	na
Aldrin ^c	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	1.1E-03	--	--	--	--	3.0E+00	--	na
Ammonia-N (mg/l) (Yearly)	0	5.73E+00	9.73E-01	na	--	5.7E+00	9.7E-01	na	--	--	--	--	--	5.7E+00	9.7E-01	na
Ammonia-N (mg/l) (High Flow)	0	7.35E+00	2.34E+00	na	--	1.1E+01	5.5E+00	na	--	--	--	--	--	1.1E+01	5.5E+00	na
Anthracene	0	--	--	na	4.0E+04	--	--	na	5.1E+04	--	--	--	--	--	--	na
Antimony	0	--	--	na	6.4E+02	--	--	na	8.1E+02	--	--	--	--	--	--	na
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	3.4E+02	1.5E+02	na
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Benzene ^c	0	--	--	na	5.1E+02	--	--	na	1.1E+03	--	--	--	--	--	--	na
Benzidine ^c	0	--	--	na	2.0E-03	--	--	na	4.3E-03	--	--	--	--	--	--	na
Benzo (a) anthracene ^c	0	--	--	na	1.8E-01	--	--	na	3.9E-01	--	--	--	--	--	--	na
Benzo (b) fluoranthene ^c	0	--	--	na	1.8E-01	--	--	na	3.9E-01	--	--	--	--	--	--	na
Benzo (k) fluoranthene ^c	0	--	--	na	1.8E-01	--	--	na	3.9E-01	--	--	--	--	--	--	na
Benzo (a) pyrene ^c	0	--	--	na	5.3E+00	--	--	na	1.2E+01	--	--	--	--	--	--	na
Bis(2-Chloroethyl) Ether ^c	0	--	--	na	6.5E+04	--	--	na	8.2E+04	--	--	--	--	--	--	na
Bis(2-Chloroisopropyl) Ether	0	--	--	na	2.2E+01	--	--	na	4.8E+01	--	--	--	--	--	--	na
Bis 2-Ethylhexyl Phthalate ^c	0	--	--	na	1.4E+03	--	--	na	3.0E+03	--	--	--	--	--	--	na
Bromofom ^c	0	--	--	na	1.9E+03	--	--	na	2.4E+03	--	--	--	--	--	--	na
Butylbenzylphthalate	0	8.6E+00	2.0E+00	na	--	8.6E+00	2.0E+00	na	--	--	--	--	--	8.6E+00	2.0E+00	na
Cadmium	0	--	--	na	1.6E+01	--	--	na	3.5E+01	--	--	--	--	--	--	na
Carbon Tetrachloride ^c	0	--	--	na	8.1E-03	--	--	na	1.8E-02	--	--	--	--	--	--	na
Chlordane ^c	0	2.4E+00	4.3E-03	na	--	2.4E+00	4.3E-03	na	--	--	--	--	--	2.4E+00	4.3E-03	na
Chlordane ^c	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	8.6E+05	2.3E+05	na
Chloride	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	1.9E+01	1.1E+01	na
TRC	0	--	--	na	1.6E+03	--	--	na	2.0E+03	--	--	--	--	--	--	na
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	2.0E+03	--	--	--	--	--	--	na

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane ^g	0	--	--	na	1.3E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	1.4E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	2.0E+03	--	--	--	--	--	--	--	--	--	--	na	2.0E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	1.0E+03	1.3E+02	na	--	1.0E+03	1.3E+02	na	--	--	--	--	--	--	--	--	--	1.0E+03	1.3E+02	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene ^c	0	--	--	na	1.8E-02	--	--	na	3.9E-02	--	--	--	--	--	--	--	--	--	--	na	3.9E-02
Copper	0	2.6E+01	1.6E+01	na	--	2.6E+01	1.6E+01	na	--	--	--	--	--	--	--	--	--	2.6E+01	1.6E+01	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	2.0E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	2.0E+04
DDD ^c	0	--	--	na	3.1E-03	--	--	na	6.7E-03	--	--	--	--	--	--	--	--	--	--	na	6.7E-03
DOE ^c	0	--	--	na	2.2E-03	--	--	na	4.8E-03	--	--	--	--	--	--	--	--	--	--	na	4.8E-03
DDT ^c	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	4.8E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	4.8E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene ^c	0	--	--	na	1.8E-01	--	--	na	3.9E-01	--	--	--	--	--	--	--	--	--	--	na	3.9E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	1.2E+03	--	--	--	--	--	--	--	--	--	--	na	1.2E+03
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	2.4E+02	--	--	--	--	--	--	--	--	--	--	na	2.4E+02
3,3-Dichlorobenzidine ^g	0	--	--	na	2.8E-01	--	--	na	6.1E-01	--	--	--	--	--	--	--	--	--	--	na	6.1E-01
Dichlorobromomethane ^g	0	--	--	na	1.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,2-Dichloroethane ^c	0	--	--	na	3.7E+02	--	--	na	8.0E+02	--	--	--	--	--	--	--	--	--	--	na	8.0E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	9.0E+03	--	--	--	--	--	--	--	--	--	--	na	9.0E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.3E+04	--	--	--	--	--	--	--	--	--	--	na	1.3E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane ^c	0	--	--	na	1.5E+02	--	--	na	3.3E+02	--	--	--	--	--	--	--	--	--	--	na	3.3E+02
1,3-Dichloropropene ^c	0	--	--	na	2.1E+02	--	--	na	4.6E+02	--	--	--	--	--	--	--	--	--	--	na	4.6E+02
Dieldrin ^c	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	1.2E-03	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	1.2E-03
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	5.6E+04	--	--	--	--	--	--	--	--	--	--	na	5.6E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.4E+06	--	--	--	--	--	--	--	--	--	--	na	1.4E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	5.7E+03	--	--	--	--	--	--	--	--	--	--	na	5.7E+03
2,4-Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	6.7E+03	--	--	--	--	--	--	--	--	--	--	na	6.7E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	3.5E+02	--	--	--	--	--	--	--	--	--	--	na	3.5E+02
2,4-Dinitrotoluene ^c	0	--	--	na	3.4E+01	--	--	na	7.4E+01	--	--	--	--	--	--	--	--	--	--	na	7.4E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	6.5E-08	--	--	--	--	--	--	--	--	--	--	na	6.5E-08
1,2-Diphenylhydrazine ^g	0	--	--	na	2.0E+00	--	--	na	4.3E+00	--	--	--	--	--	--	--	--	--	--	na	4.3E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	1.1E+02	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	1.1E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	1.1E+02	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	1.1E+02
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	1.1E+02	--	--	--	--	--	--	--	--	--	--	na	1.1E+02
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	7.6E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	7.6E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.8E-01	--	--	--	--	--	--	--	--	--	--	na	3.8E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.7E+03	--	--	--	--	--	--	--	--	--	--	na	2.7E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	6.7E+03	--	--	--	--	--	--	--	--	--	--	na	6.7E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	1.0E-02	--	--	1.0E-02	na	--
Heptachlor ^c	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	1.7E-03	--	--	--	--	--	--	5.2E-01	3.8E-03	5.2E-01	3.8E-03	na	1.7E-03
Heptachlor Epoxide ^f	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	8.5E-04	--	--	--	--	--	--	5.2E-01	3.8E-03	5.2E-01	3.8E-03	na	8.5E-04
Hexachlorobenzene ^f	0	--	--	na	2.9E-03	--	--	na	6.3E-03	--	--	--	--	--	--	--	--	--	--	na	6.3E-03
Hexachlorobutadiene ^f	0	--	--	na	1.8E+02	--	--	na	3.9E+02	--	--	--	--	--	--	--	--	--	--	na	3.9E+02
Hexachlorocyclohexane	0	--	--	na	4.9E-02	--	--	na	1.1E-01	--	--	--	--	--	--	--	--	--	--	na	1.1E-01
Alpha-BHC ^c	0	--	--	na	1.7E-01	--	--	na	3.7E-01	--	--	--	--	--	--	--	--	--	--	na	3.7E-01
Beta-BHC ^c	0	--	--	na	1.8E+00	9.5E-01	--	na	3.9E+00	--	--	--	--	--	--	9.5E-01	--	--	--	na	3.9E+00
Hexachlorocyclohexane	0	--	--	na	1.1E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Gamma-BHC ^c (Lindane)	0	--	--	na	3.3E+01	--	--	na	7.2E+01	--	--	--	--	--	--	--	--	--	--	na	7.2E+01
Hexachlorocyclopentadiene	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Hexachloroethane ^f	0	--	--	na	1.8E-01	--	--	na	3.9E-01	--	--	--	--	--	--	--	--	--	--	na	3.9E-01
Hydrogen Sulfide	0	--	--	na	9.6E+03	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	2.1E+04
Indeno (1,2,3-cd) pyrene ^c	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Iron	0	2.9E+02	3.3E+01	na	--	2.9E+02	3.3E+01	na	--	--	--	--	--	--	--	2.9E+02	3.3E+01	2.9E+02	3.3E+01	na	--
Isophorone ^c	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Kepon ^e	0	--	--	na	1.4E+00	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	1.4E+00	7.7E-01	--	--
Lead	0	--	0.0E+00	na	1.5E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Mallathion	0	--	--	na	5.9E+03	--	--	na	1.3E+04	--	--	--	--	--	--	--	--	--	--	na	1.3E+04
Manganese	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Methyl Bromide	0	3.3E+02	3.6E+01	na	4.6E+03	3.3E+02	3.6E+01	na	5.8E+03	--	--	--	--	--	--	3.3E+02	3.6E+01	3.3E+02	3.6E+01	na	5.8E+03
Methylene Chloride ^c	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nickel	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrate (as N)	0	--	--	na	6.9E+02	--	--	na	8.7E+02	--	--	--	--	--	--	--	--	--	--	na	8.7E+02
Nitrobenzene	0	--	--	na	3.0E+01	--	--	na	6.5E+01	--	--	--	--	--	--	--	--	--	--	na	6.5E+01
N-Nitrosodimethylamin ^g	0	--	--	na	6.0E+01	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
N-Nitrosodiphenylamin ^g	0	--	--	na	5.1E+00	--	--	na	1.1E+01	--	--	--	--	--	--	--	--	--	--	na	1.1E+01
N-Nitrosodi-n-propylamin ^g	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nonylphenol	0	2.8E+01	6.6E+00	na	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	2.8E+01	6.6E+00	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	6.5E-02	1.3E-02	6.5E-02	1.3E-02	na	--
PCB Total ^c	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	1.4E-03	--	--	--	--	--	--	--	--	--	--	na	1.4E-03
Pentachlorophenol ^c	0	5.8E+00	4.5E+00	na	3.0E+01	5.8E+00	4.5E+00	na	6.5E+01	--	--	--	--	--	--	5.8E+00	4.5E+00	5.8E+00	4.5E+00	na	6.5E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Pyrene	0	--	--	na	4.0E+03	--	--	na	5.1E+03	--	--	--	--	--	--	--	--	--	--	na	5.1E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	5.3E+03	--	--	--	--	--	--	--	--	2.0E+01	5.0E+00	na	5.3E+03
Silver	0	1.1E+01	--	na	--	1.1E+01	--	na	--	--	--	--	--	--	--	--	--	1.1E+01	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane ^g	0	--	--	na	4.0E+01	--	--	na	8.7E+01	--	--	--	--	--	--	--	--	--	--	na	8.7E+01
Tetrachloroethylene ^g	0	--	--	na	3.3E+01	--	--	na	7.2E+01	--	--	--	--	--	--	--	--	--	--	na	7.2E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	6.0E-01	--	--	--	--	--	--	--	--	--	--	na	6.0E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	7.6E+03	--	--	--	--	--	--	--	--	--	--	na	7.6E+03
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene ^c	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	6.1E-03	--	--	--	--	--	--	--	--	7.3E-01	2.0E-04	na	6.1E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	4.6E-01	7.2E-02	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
1,1,2-Trichloroethane ^g	0	--	--	na	1.6E+02	--	--	na	3.5E+02	--	--	--	--	--	--	--	--	--	--	na	3.5E+02
Trichloroethylene ^c	0	--	--	na	3.0E+02	--	--	na	6.5E+02	--	--	--	--	--	--	--	--	--	--	na	6.5E+02
2,4,6-Trichlorophenol ^f	0	--	--	na	2.4E+01	--	--	na	5.2E+01	--	--	--	--	--	--	--	--	--	--	na	5.2E+01
2-(2,4,5-Trichlorophenoxy)propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride ^g	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Zinc	0	2.1E+02	2.1E+02	na	2.4E+01	2.1E+02	2.1E+02	na	5.2E+01	--	--	--	--	--	--	--	--	2.1E+02	2.1E+02	na	3.3E+04

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	8.1E+02
Arsenic	9.0E+01
Barium	na
Cadmium	1.2E+00
Chromium III	7.8E+01
Chromium VI	6.4E+00
Copper	9.7E+00
Iron	na
Lead	2.0E+01
Manganese	na
Mercury	4.8E-01
Nickel	2.2E+01
Selenium	3.0E+00
Silver	4.5E+00
Zinc	8.4E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Round Hill WWTP
VA0026212
pH and Temperature Values (January 1, 2011 -- August 31, 2011)

Date	pH	Temperature
1-Jan-11	8.9	12
2-Jan-11	8.3	12
3-Jan-11	8.1	11
4-Jan-11	7.6	12
5-Jan-11	7.6	11
6-Jan-11	8.3	10
7-Jan-11	7.6	9
8-Jan-11	7.2	12
9-Jan-11	7.2	11
10-Jan-11	7.6	9
11-Jan-11	7.3	12
12-Jan-11	7.5	10
13-Jan-11	7.6	9
14-Jan-11	7.5	9
15-Jan-11	7.2	9
16-Jan-11	7.5	10
17-Jan-11	8.2	9
18-Jan-11	7.3	10
19-Jan-11	8.0	10
20-Jan-11	7.7	10
21-Jan-11	7.7	10
22-Jan-11	7.7	10
23-Jan-11	7.2	9
24-Jan-11	7.4	9
25-Jan-11	7.6	9
26-Jan-11	7.3	10
27-Jan-11	7.9	9
28-Jan-11	7.3	9
29-Jan-11	8.3	10
30-Jan-11	7.1	9
31-Jan-11	7.2	10
1-Feb-11	6.6	9
2-Feb-11	7.2	9
3-Feb-11	7.4	10
4-Feb-11	7.4	11
5-Feb-11	7.4	9
6-Feb-11	7.4	11
7-Feb-11	7.4	11
8-Feb-11	7.7	10
9-Feb-11	7.1	11
10-Feb-11	8.0	9
11-Feb-11	7.7	9
12-Feb-11	7.9	8
13-Feb-11	7.7	9
14-Feb-11	7.8	10
15-Feb-11	8.1	10
16-Feb-11	8.3	10

Round Hill WWTP**VA0026212****pH and Temperature Values (January 1, 2011 -- August 31, 2011)**

17-Feb-11	7.7	12
18-Feb-11	7.8	12
19-Feb-11	8.3	11
20-Feb-11	7.8	11
21-Feb-11	7.7	11
22-Feb-11	8.2	10
23-Feb-11	8.2	11
24-Feb-11	7.8	10
25-Feb-11	7.9	12
26-Feb-11	7.8	11
27-Feb-11	7.9	12
28-Feb-11	8.3	12
1-Mar-11	7.8	12
2-Mar-11	7.8	12
3-Mar-11	8.2	12
4-Mar-11	7.7	11
5-Mar-11	8.3	11
6-Mar-11	8.2	12
7-Mar-11	7.7	12
8-Mar-11	7.6	12
9-Mar-11	7.6	12
10-Mar-11	7.5	12
11-Mar-11	8.0	11
12-Mar-11	7.6	11
13-Mar-11	7.6	12
14-Mar-11	7.7	12
15-Mar-11	7.6	11
16-Mar-11	7.6	12
17-Mar-11	7.6	13
18-Mar-11	7.8	13
19-Mar-11	7.8	13
20-Mar-11	7.9	12
21-Mar-11	7.7	13
22-Mar-11	7.8	13
23-Mar-11	7.3	13
24-Mar-11	7.3	13
25-Mar-11	7.4	13
26-Mar-11	7.5	12
27-Mar-11	7.9	11
28-Mar-11	8.3	12
29-Mar-11	7.2	11
30-Mar-11	7.5	12
31-Mar-11	8.1	12
1-Apr-11	8.3	12
2-Apr-11	7.7	11
3-Apr-11	8.0	11
4-Apr-11	7.5	13
5-Apr-11	7.5	14
6-Apr-11	8.2	13

Round Hill WWTP**VA0026212****pH and Temperature Values (January 1, 2011 -- August 31, 2011)**

7-Apr-11	7.5	13
8-Apr-11	7.8	13
9-Apr-11	8.1	13
10-Apr-11	7.9	14
11-Apr-11	7.6	15
12-Apr-11	7.8	16
13-Apr-11	7.6	15
14-Apr-11	7.9	14
15-Apr-11	7.7	14
16-Apr-11	8.1	14
17-Apr-11	7.5	14
18-Apr-11	7.5	14
19-Apr-11	7.2	14
20-Apr-11	8.1	15
21-Apr-11	7.5	14
22-Apr-11	7.3	14
23-Apr-11	7.6	14
24-Apr-11	7.4	15
25-Apr-11	7.7	16
26-Apr-11	7.6	17
27-Apr-11	7.4	17
28-Apr-11	7.4	17
29-Apr-11	7.4	16
30-Apr-11	7.4	15
1-May-11	7.4	11.4
2-May-11	7.7	11.4
3-May-11	7.5	11.1
4-May-11	7.5	11.3
5-May-11	7.5	11.5
6-May-11	7.5	11.4
7-May-11	7.9	11.4
8-May-11	7.4	11.2
9-May-11	7.6	11.1
10-May-11	7.6	11
11-May-11	8.0	10.7
12-May-11	8.2	10.9
13-May-11	7.6	10.8
14-May-11	7.5	10.8
15-May-11	7.6	10.6
16-May-11	7.9	10.3
17-May-11	7.4	10.7
18-May-11	7.3	10.7
19-May-11	7.0	10.8
20-May-11	7.3	11.4
21-May-11	7.5	11
22-May-11	7.9	10.7
23-May-11	7.4	10.6
24-May-11	7.7	10.7
25-May-11	7.7	10.8
26-May-11	7.8	10.6
27-May-11	7.5	10.4
28-May-11	8.1	10.5
29-May-11	7.5	10.3

Round Hill WWTP**VA0026212****pH and Temperature Values (January 1, 2011 -- August 31, 2011)**

30-May-11	8.3	10.6
31-May-11	7.8	10.6
1-Jun-11	7.4	22
2-Jun-11	7.6	21
3-Jun-11	7.5	20
4-Jun-11	7.5	20
5-Jun-11	7.4	20
6-Jun-11	7.6	21
7-Jun-11	7.7	21
8-Jun-11	7.5	22
9-Jun-11	7.5	22
10-Jun-11	7.4	22
11-Jun-11	7.5	21
12-Jun-11	7.5	21
13-Jun-11	7.9	21
14-Jun-11	7.6	21
15-Jun-11	7.3	21
16-Jun-11	7.7	21
17-Jun-11	8.2	22
18-Jun-11	8.2	21
19-Jun-11	7.6	21
20-Jun-11	7.8	22
21-Jun-11	7.9	22
22-Jun-11	8.0	22
23-Jun-11	8.1	22
24-Jun-11	8.1	22
25-Jun-11	7.9	22
26-Jun-11	7.8	22
27-Jun-11	7.6	22
28-Jun-11	8.2	23
29-Jun-11	7.9	23
30-Jun-11	8.0	23
1-Jul-11	6.7	24
2-Jul-11	6.3	22
3-Jul-11	6.5	22
4-Jul-11	6.5	23
5-Jul-11	6.6	24
6-Jul-11	6.5	24
7-Jul-11	6.5	24
8-Jul-11	6.4	24
9-Jul-11	6.5	23
10-Jul-11	6.5	23
11-Jul-11	6.5	25
12-Jul-11	6.6	25
13-Jul-11	6.4	25
14-Jul-11	6.4	23
15-Jul-11	6.7	23
16-Jul-11	6.7	23
17-Jul-11	6.7	23
18-Jul-11	6.1	24
19-Jul-11	6.2	24
20-Jul-11	6.5	26
21-Jul-11	6.5	24

Round Hill WWTP

VA0026212

pH and Temperature Values (January 1, 2011 -- August 31, 2011)

22-Jul-11	6.3	25
23-Jul-11	6.2	25
24-Jul-11	6.3	25
25-Jul-11	6.6	25
26-Jul-11	6.3	25
27-Jul-11	6.2	24
28-Jul-11	6.3	24
29-Jul-11	6.2	25
30-Jul-11	6.3	25
31-Jul-11	6.4	24
1-Aug-11	8.5	26
2-Aug-11	8.3	26
3-Aug-11	8.3	25
4-Aug-11	7.8	24
5-Aug-11	7.8	24
6-Aug-11	8.0	26
7-Aug-11	7.9	25
8-Aug-11	8.3	25
9-Aug-11	8.0	24
10-Aug-11	7.9	25
11-Aug-11	7.8	24
12-Aug-11	7.9	24
13-Aug-11	8.3	24
14-Aug-11	8.1	24
15-Aug-11	8.2	24
16-Aug-11	7.8	24
17-Aug-11	7.7	24
18-Aug-11	8.2	24
19-Aug-11	8.0	24
20-Aug-11	8.2	24
21-Aug-11	7.7	24
22-Aug-11	7.8	24
23-Aug-11	7.6	24
24-Aug-11	7.9	24
25-Aug-11	7.7	24
26-Aug-11	8.1	24
27-Aug-11	8.2	25
28-Aug-11	7.7	23
29-Aug-11	7.8	23
30-Aug-11	7.8	22
31-Aug-11	7.7	23
90th Percentile	8.2	24
10th Percentile	6.6	10

Field Data for DEQ Monitoring Station 1aNOG011.60
July 2005 -- November 2006

Collection Date	Temp (C)	pH (S.U.)
5-Jul-05	24.34	7.88
1-Sep-05	25.06	7.81
8-Nov-05	10.75	7.84
20-Jul-06	26.3	7.6
25-Sep-06	19	7.7
6-Nov-06	10.6	7.6
90th Percentile	25.68	7.86
10th Percentile		7.6

9/19/2011 3:37:19 PM

Facility = Round Hill WWTP
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 5.73
WLAc = 0.973
Q.L. = .2
samples/mo. = 12
samples/wk. = 3

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average = 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 1.96319300089407
Average Weekly limit = 1.43596515223428
Average Monthly Limit = 1.06960635112515

The data are:

REGIONAL MODELING SYSTEM VERSION 4.0
**Model Input File for the Discharge
to NF GOOSE CREEK.**

File Information

File Name: I:\althompson\Permit Documents\PERMITS IN PROGRESS\Basham Sir
Date Modified: December 30, 2005

Water Quality Standards Information

Stream Name: NF GOOSE CREEK
River Basin: Potomac/Shenandoah Rivers Basin
Section: 9
Class: III - Nontidal Waters (Coastal and Piedmont)
Special Standards: none

Background Flow Information

Gauge Used: Taylorstown
Gauge Drainage Area: 89.6 Sq.Mi.
Gauge 7Q10 Flow: 1.03 MGD
Headwater Drainage Area: 10.84 Sq.Mi.
Headwater 7Q10 Flow: 0 MGD (Net; includes Withdrawals/Discharges)
Withdrawal/Discharges: -0.12461 MGD
Incremental Flow in Segments: 1.149554E-02 MGD/Sq.Mi.

Background Water Quality

Background Temperature: 25 Degrees C
Background cBOD5: 2 mg/l
Background TKN: 0 mg/l
Background D.O.: 7.383517 mg/l

Model Segmentation

Number of Segments: 2
Model Start Elevation: 450 ft above MSL
Model End Elevation: 310 ft above MSL

2 segments

1) Rnd Hill .75 to
confluence w/ UT
(Basham 1.5 DO 6.5

2) UT to end

REGIONAL MODELING SYSTEM VERSION 4.0
Model Input File for the Discharge
to NF GOOSE CREEK.

Segment Information for Segment 1

Definition Information

Segment Definition: A discharge enters.
Discharge Name: ROUND HILL STP
VPDES Permit No.:

Discharger Flow Information

Flow: 0.75 MGD
cBOD5: 10 mg/l
TKN: 3 mg/l
D.O.: 7 mg/l
Temperature: 25 Degrees C

Geographic Information

Segment Length: 2.95 miles
Upstream Drainage Area: 10.84 Sq.Mi.
Downstream Drainage Area: 17.4 Sq.Mi.
Upstream Elevation: 450 Ft.
Downstream Elevation: 360 Ft.

Hydraulic Information

Segment Width: 13.999 Ft.
Segment Depth: 0.236 Ft.
Segment Velocity: 0.351 Ft./Sec.
Segment Flow: 0.75 MGD
Incremental Flow: 0.075 MGD (Applied at end of segment.)

Channel Information

Cross Section: Rectangular
Character: Moderately Meandering
Pool and Riffle: No
Bottom Type: Silt
Sludge: None
Plants: Few
Algae: On Entire Bottom

REGIONAL MODELING SYSTEM VERSION 4.0
Model Input File for the Discharge
to NF GOOSE CREEK.

Segment Information for Segment 2

Definition Information

Segment Definition:	A discharge enters.
Discharge Name:	UT WITH BASHAM SIMMS
VPDES Permit No.:	

Discharger Flow Information

Flow:	1.5 MGD
cBOD5:	8.38 mg/l
TKN:	4.82 mg/l
D.O.:	6.317 mg/l
Temperature:	25 Degrees C

Geographic Information

Segment Length:	4.6 miles
Upstream Drainage Area:	17.4 Sq.Mi.
Downstream Drainage Area:	25.34 Sq.Mi.
Upstream Elevation:	360 Ft.
Downstream Elevation:	310 Ft.

Hydraulic Information

Segment Width:	20 Ft.
Segment Depth:	0.428 Ft.
Segment Velocity:	0.372 Ft./Sec.
Segment Flow:	2.25 MGD
Incremental Flow:	0.091 MGD (Applied at end of segment.)

Channel Information

Cross Section:	Rectangular
Character:	Mostly Straight
Pool and Riffle:	No
Bottom Type:	Silt
Sludge:	None
Plants:	Few
Algae:	Only On Edges

"Model Run For I:\althompson\Permit Documents\PERMITS IN PROGRESS\Basham Simms 2005
modification\Fact Sheet and attachments\Rnd Hill 750000 as 2 segments.mod On
12/30/2005 8:17:50 AM"

"Model is for NF GOOSE CREEK."

"Model starts at the ROUND HILL STP discharge."

"Background Data"

"7Q10"	"CBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
0,	2,	0,	7.384,	25

"Discharge/Tributary Input Data for Segment 1"

"Flow"	"CBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
.75,	10,	3,	.7,	25

"Hydraulic Information for Segment 1"

"Length"	"width"	"Depth"	"velocity"
"(mi)"	"(ft)"	"(ft)"	"(ft/sec)"
2.95,	13.999,	.236,	.351

"Initial Mix values for segment 1"

"Flow"	"DO"	"CBOD"	"nBOD"	"DOSat"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
.75,	7,	25,	0,	8.217,	25

"Rate Constants for Segment 1. - (All units Per Day)"

"k1"	"k1@T"	"k2"	"k2@T"	"kn"	"kn@T"	"BD"	"BD@T"
1.4,	1.761,	18.305,	20.61,	.35,	.514,	0,	0

"Output for Segment 1"

"Segment starts at ROUND HILL STP"

"Total"	"Segm."	"Dist."	"Dist."	"DO"	"CBOD"	"nBOD"
"(mi)"	"(mi)"	"(mi)"	"(mi)"	"(mg/l)"	"(mg/l)"	"(mg/l)"
0,	0,	7,	25,	0		
.1,	.1,	6.733,	24.245,	0		
.2,	.2,	6.566,	23.513,	0		
.3,	.3,	6.468,	22.803,	0		
.4,	.4,	6.417,	22.114,	0		
.5,	.5,	6.399,	21.446,	0		
.6,	.6,	6.403,	20.798,	0		
.7,	.7,	6.423,	20.17,	0		
.8,	.8,	6.453,	19.561,	0		
.9,	.9,	6.489,	18.97,	0		
1,	1,	6.529,	18.397,	0		
1.1,	1.1,	6.572,	17.841,	0		
1.2,	1.2,	6.616,	17.302,	0		
1.3,	1.3,	6.66,	16.779,	0		
1.4,	1.4,	6.704,	16.272,	0		
1.5,	1.5,	6.748,	15.781,	0		
1.6,	1.6,	6.791,	15.304,	0		
1.7,	1.7,	6.833,	14.842,	0		
1.8,	1.8,	6.874,	14.394,	0		
1.9,	1.9,	6.914,	13.959,	0		
2,	2,	6.953,	13.537,	0		
2.1,	2.1,	6.991,	13.128,	0		
2.2,	2.2,	7.028,	12.732,	0		
2.3,	2.3,	7.064,	12.347,	0		
2.4,	2.4,	7.099,	11.974,	0		
2.5,	2.5,	7.133,	11.612,	0		
2.6,	2.6,	7.165,	11.261,	0		

2.7,	2.7,	7.197,	10.921,	modout.txt
2.8,	2.8,	7.228,	10.591,	0
2.9,	2.9,	7.258,	10.271,	0
2.95,	2.95,	7.272,	10.115,	0

"Discharge/Tributary Input Data for Segment 2"
 "Flow", "CBOD5", "TKN", "DO", "Temp"
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
 1.5, 8.38, 4.82, 6.317, 25

"Incremental Flow Input Data for Segment 2"
 "Flow", "CBOD5", "TKN", "DO", "Temp"
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
 .075, 2, 0, 7.414, 25

"Hydraulic Information for Segment 2"
 "Length", "width", "Depth", "Velocity"
 "(mi)", "(ft)", "(ft)", "(ft/sec)"
 4.6, 20, .428, .372

"Initial Mix Values for Segment 2"
 "Flow", "DO", "CBOD", "nBOD", "DOSat", "Temp"
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
 2.325, 6.66, 16.94, 5.084, 8.237, 25

"Rate Constants for Segment 2. - (All units Per Day)"
 "k1", "k1@T", "k2", "k2@T", "kn", "kn@T", "BD", "BD@T"
 1.2, 1.51, 6.522, 7.343, .4, .588, 0, 0

"Output for Segment 2"
 "Segment starts at UT WITH BASHAM SIMMS"
 "Total", "Segm."
 "Dist.", "Dist.", "DO", "CBOD", "nBOD"
 "(mi)", "(mi)", "(mg/l)", "(mg/l)", "(mg/l)"

2.95,	0,	6.66,	16.94,	5.084
3.05,	.1,	6.402,	16.525,	5.035
3.15,	.2,	6.184,	16.12,	4.987
3.25,	.3,	6,	15.725,	4.939
3.35,	.4,	5.847,	15.34,	4.892
3.45,	.5,	5.72,	14.964,	4.845
3.55,	.6,	5.617,	14.597,	4.798
3.65,	.7,	5.535,	14.239,	4.752
3.75,	.8,	5.471,	13.89,	4.706
3.85,	.9,	5.422,	13.55,	4.661
3.95,	1,	5.387,	13.218,	4.616
4.05,	1.1,	5.364,	12.894,	4.572
4.15,	1.2,	5.352,	12.578,	4.528
4.25,	1.3,	5.349,	12.27,	4.484
4.35,	1.4,	5.354,	11.969,	4.441
4.45,	1.5,	5.365,	11.676,	4.398
4.55,	1.6,	5.382,	11.39,	4.356
4.65,	1.7,	5.404,	11.111,	4.314
4.75,	1.8,	5.431,	10.839,	4.273
4.85,	1.9,	5.461,	10.573,	4.232
4.95,	2,	5.494,	10.314,	4.191
5.05,	2.1,	5.53,	10.061,	4.151
5.15,	2.2,	5.568,	9.815,	4.111
5.25,	2.3,	5.608,	9.575,	4.071
5.35,	2.4,	5.649,	9.34,	4.032
5.45,	2.5,	5.691,	9.111,	3.993

5.55,	2.6,	5.734,	8.888,	modout.txt 3.955
5.65,	2.7,	5.778,	8.67,	3.917
5.75,	2.8,	5.822,	8.458,	3.879
5.85,	2.9,	5.866,	8.251,	3.842
5.95,	3,	5.91,	8.049,	3.805
6.05,	3.1,	5.954,	7.852,	3.768
6.15,	3.2,	5.998,	7.66,	3.732
6.25,	3.3,	6.042,	7.472,	3.696
6.35,	3.4,	6.086,	7.289,	3.66
6.45,	3.5,	6.129,	7.11,	3.625
6.55,	3.6,	6.172,	6.936,	3.59
6.65,	3.7,	6.214,	6.766,	3.556
6.75,	3.8,	6.256,	6.6,	3.522
6.85,	3.9,	6.297,	6.438,	3.488
6.95,	4,	6.337,	6.28,	3.454
7.05,	4.1,	6.377,	6.126,	3.421
7.15,	4.2,	6.416,	5.976,	3.388
7.25,	4.3,	6.454,	5.83,	3.355
7.35,	4.4,	6.492,	5.687,	3.323
7.45,	4.5,	6.529,	5.548,	3.291
7.55,	4.6,	6.565,	5.412,	3.259

"END OF FILE"

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Loudoun County, Virginia.

PUBLIC COMMENT PERIOD: December 22, 2011 to 5:00 p.m. on January 20, 2012

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: John Barkley, Town Administrator, Town of Round Hill, P.O. Box 36, Round Hill, VA 20142, VA0026212

NAME AND ADDRESS OF FACILITY: Town of Round Hill WWTP, 17749 Lakefield Road, Round Hill, VA 20142

PROJECT DESCRIPTION: The Town of Round Hill has applied for a reissuance of a permit for the public Town of Round Hill Wastewater Treatment Plant. The applicant proposes to release treated sewage wastewaters from residential areas at a rate of 0.75 million gallons per day into a water body. Sludge from the treatment process will be disposed of in a landfill. The facility proposes to release the treated sewage into North Fork of Goose Creek in Loudoun County in the Potomac River Watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: Flow, cBOD₅, TSS, pH, D.O., TKN, Total Nitrogen, Total Phosphorus and *E. coli*.

This facility is subject to the requirements of 9 VAC 25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

Name: Anna T. Westernik

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3837 E-mail: anna.westernik@deq.virginia.gov Fax: (703) 583-3821

**State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review**

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Round Hill WWTP
NPDES Permit Number:	VA0026212
Permit Writer Name:	Anna T. Westernik
Date:	9/23/11

Major []

Minor [X]

Industrial []

Municipal [X]

I.A. Draft Permit Package Submittal Includes:

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?	X		
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet or permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?*	X		
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet or permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?	X		
a. Has a TMDL been developed and approved by EPA for the impaired water?	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	
*Updated flow values from 2006 used in this reissuance.			

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?	X		
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs (To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether “antibacksliding” provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for <u>ALL</u> of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?	X		
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?	X		
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?		X	
e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

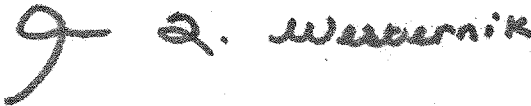
II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?	X		
2. Does the permit include appropriate storm water program requirements?			X

II.F. Special Conditions – cont.	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			X
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the “Nine Minimum Controls”?			X
b. Does the permit require development and implementation of a “Long Term Control Plan”?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?	X		

II.G. Standard Conditions		Yes	No	N/A
1. Does the permit contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?		X		
List of Standard Conditions – 40 CFR 122.41				
Duty to comply	Property rights	Reporting Requirements		
Duty to reapply	Duty to provide information	Planned change		
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance		
not a defense	Monitoring and records	Transfers		
Duty to mitigate	Signatory requirement	Monitoring reports		
Proper O & M	Bypass	Compliance schedules		
Permit actions	Upset	24-Hour reporting		
		Other non-compliance		
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?		X		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	<u>Anna T. Westernik</u>
Title	<u>Environmental Specialist Senior II</u>
Signature	<u></u>
Date	<u>9/23/11</u>